

Course Material

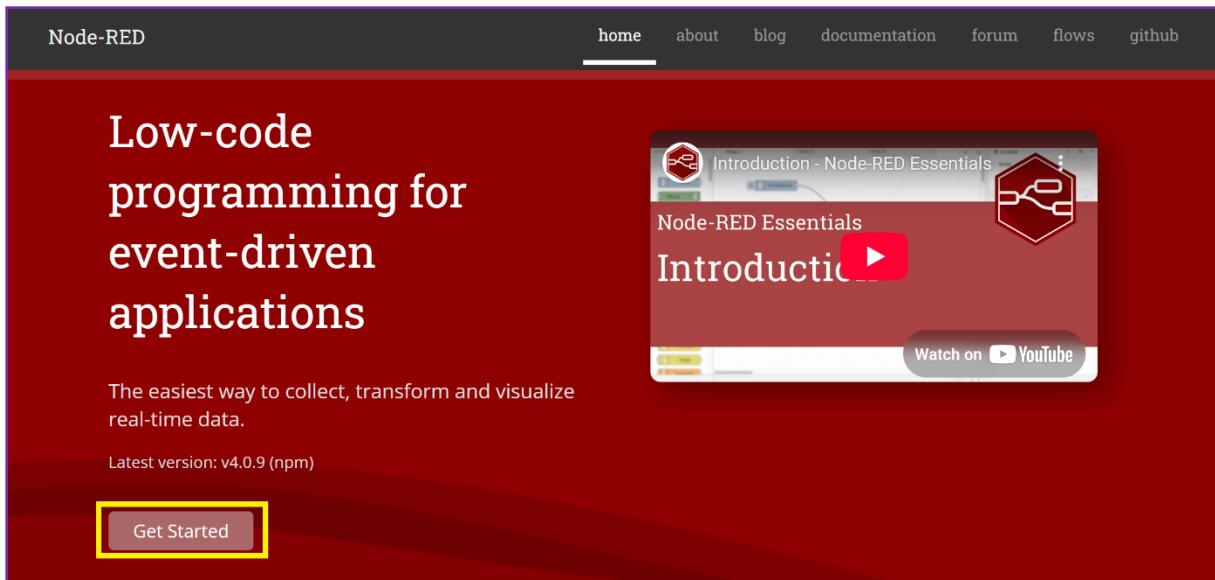
Node-RED

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Installation

1. Go to <https://nodered.org/>
2. Click on "Get Started → Run locally → Getting started → Running locally".



Node-RED

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Low-code programming for event-driven applications

The easiest way to collect, transform and visualize real-time data.

Latest version: v4.0.9 (npm)

Get Started

Introduction - Node-RED Essentials

Node-RED Essentials

Introduction

Watch on YouTube

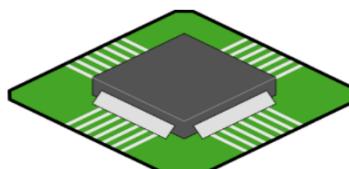
Get Started

Node-RED is built on Node.js, taking full advantage of its event-driven, non-blocking model. This makes it ideal to run at the edge of the network on low-cost hardware such as the Raspberry Pi as well as in the cloud.



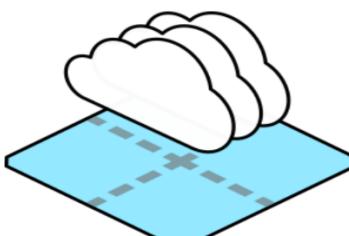
Run locally

- Getting started
- Docker



On a device

- Raspberry Pi
- BeagleBone Black



In the cloud

- FlowFuse
- Amazon Web Services

Node-RED

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Getting Started

This guide will help you get Node-RED installed and running in just a few minutes.

Pick where you want to run Node-RED, whether on your local computer, a device such as a Raspberry Pi or in the cloud and follow the guides below.



Running locally

Installing Node-RED on your local computer



Raspberry Pi

Get started using our all-in-one install script for the mighty Raspberry Pi



Docker

Running Node-RED using Docker

- For Windows installation, click on the highlighted link and follow the steps to install Node.js.

<https://nodered.org/docs/getting-started/windows>

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Prerequisites

- Installing with npm
- Installing with docker
- Installing with snap
- Running
- Command-line Usage
- Override individual settings
- Passing arguments to the underlying Node.js process
- Upgrading Node-RED
- Next steps

Running Node-RED locally

 If you are on a Raspberry Pi or any Debian-based operating system, including Ubuntu and Diet-Pi, you can use the Pi install script available [here](#).

 If you are on an RPM-based operating system, including RedHat, Fedora and CentOS, you can use the RPM install script available [here](#).

 If you are using Windows, detailed instructions for installing Node-RED can be found [here](#).

Prerequisites

To install Node-RED locally you will need a [supported version of Node.js](#).

Quick Start

1. Install Node.js

Download the latest LTS version of Node.js from the official [Node.js home page](#). It will offer you the best version for your system.

Run the downloaded MSI file. Installing Node.js requires local administrator rights; if you are not a local administrator, you will be prompted for an administrator password on install. Accept the defaults when installing. After installation completes, close any open command prompts and re-open to ensure new environment variables are picked up.

Once installed, open a command prompt and run the following command to ensure Node.js and npm are installed correctly.

Using Powershell: `node --version; npm --version`

Using cmd: `node --version && npm --version`

You should receive back output that looks similar to:

```
v18.15.0
9.5.0
```

2. Install Node-RED

Installing Node-RED as a global module adds the command `node-red` to your system path. Execute the following at the command prompt:

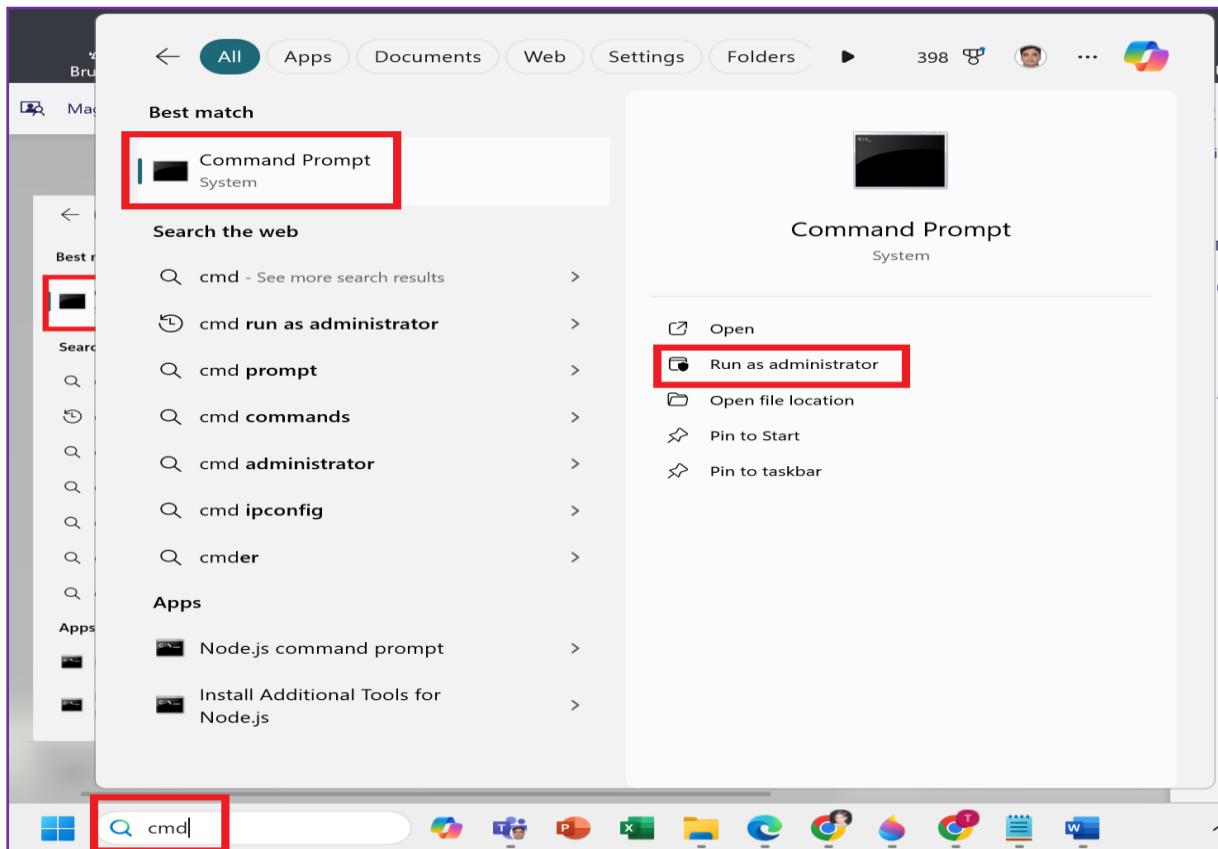
```
npm install -g --unsafe-perm node-red
```

3. Run Node-RED

Once installed, you are ready to [run Node-RED](#).

Node-RED – User Guide

1. Open the Command Prompt on your PC by typing “**cmd**” in the search bar and selecting “**Run as administrator**”. Inside the Command Prompt, type “**node-red**” and press **Enter** to run Node.js.



Administrator: Command Prompt
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.

```
C:\Windows\System32>node-red
```

node-red
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.

```
C:\Windows\System32>node-red
19 Mar 12:12:07 - [info]

Welcome to Node-RED
=====
19 Mar 12:12:07 - [info] Node-RED version: v4.0.9
19 Mar 12:12:07 - [info] Node.js version: v22.14.0
19 Mar 12:12:07 - [info] Windows_NT 10.0.26100 x64 LE
19 Mar 12:12:19 - [info] Loading palette nodes
19 Mar 12:12:31 - [info] Dashboard version 3.6.5 started at /ui
(node:17712) [DEP0044] DeprecationWarning: The `util.isArray` API is deprecated. Please use `Array.isArray()` instead.
(Use `node --trace-deprecation ...` to show where the warning was created)
Unhandled rejection Error: ENOENT: no such file or directory, open 'C:\02.png'

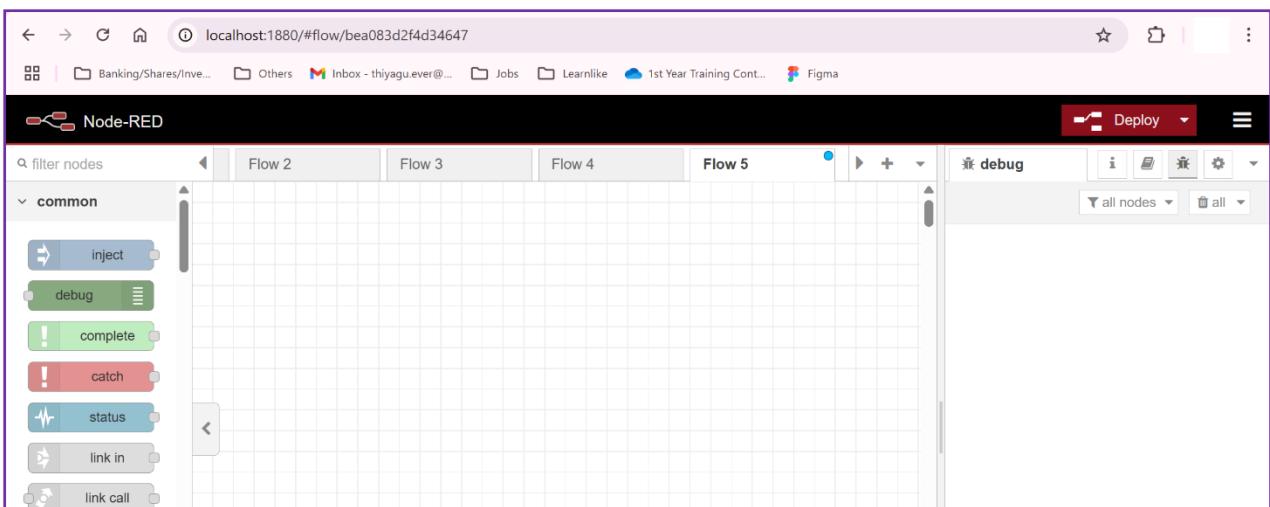
19 Mar 12:12:35 - [info] Settings file : C:\Users\Thiyagarajan\.node-red\settings.js
19 Mar 12:12:35 - [info] Context store : 'default' [module=memory]
19 Mar 12:12:35 - [info] User directory : \Users\Thiyagarajan\.node-red
19 Mar 12:12:35 - [warn] Projects disabled : editorTheme.projects.enabled=false
19 Mar 12:12:35 - [info] Flows file : \Users\Thiyagarajan\.node-red\flows.json
19 Mar 12:12:35 - [warn]

-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----
19 Mar 12:12:35 - [info] Server now running at http://127.0.0.1:1880/
19 Mar 12:12:35 - [info] Starting flows
19 Mar 12:12:35 - [info] Started flows
```

- After initializing Node-RED, open any browser and enter <http://localhost:1880> in the address bar to launch Node-RED in the browser.

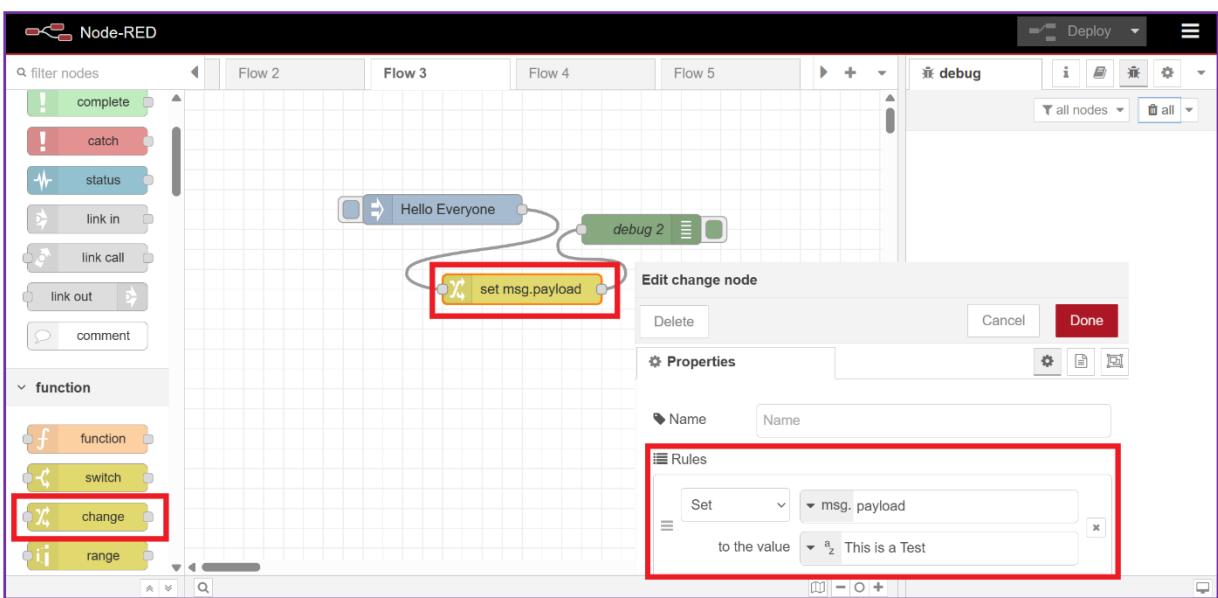


3. Follow this Node-RED YouTube tutorial to create your first flow and understand its functionality.

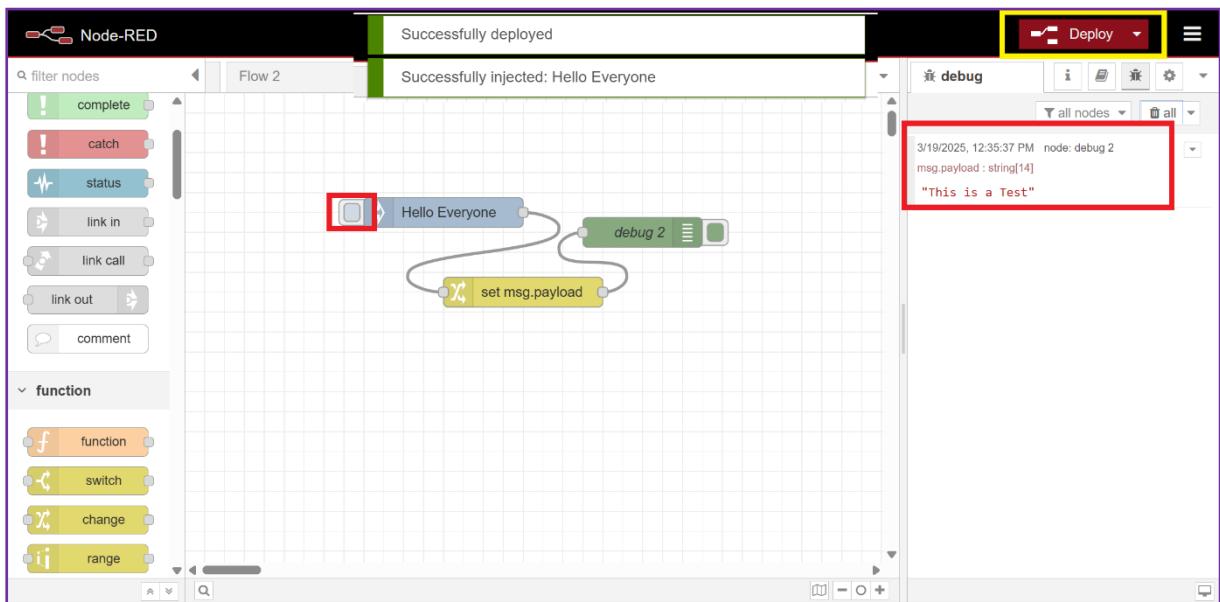


Note: Always keep the command prompt open to run Node.js. If closed Node-RED will stop working.

4. Scroll down and add the “change” function to modify the **msg.payload** input to a new value.

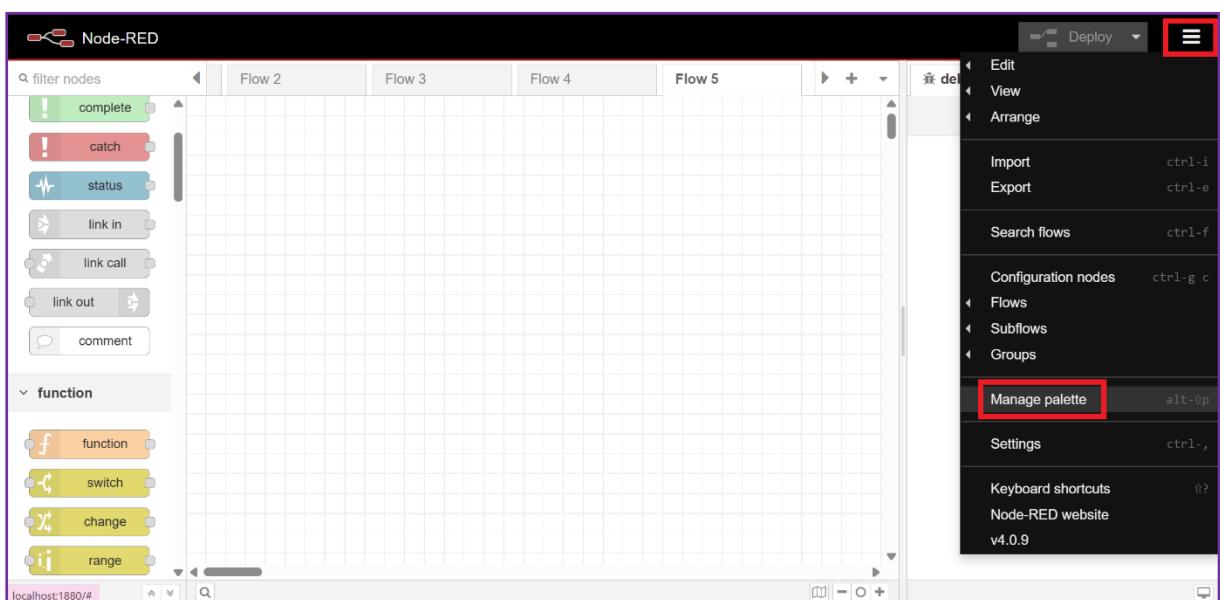


5. Click on “Deploy”, then click on “Inject” to see the changes in action.



Node-RED – Dashboard

1. Click on the **Hamburger menu** (≡) in the top right corner and select **Manage palette**.



2. Go to the “Install” tab, search for **dashboard**, select “node-red-dashboard”, and click “Install” to add the node.

User Settings

View Nodes **Install**

Palette Node-RED Community catalogue sort:

Keyboard 118 / 5292

Environment

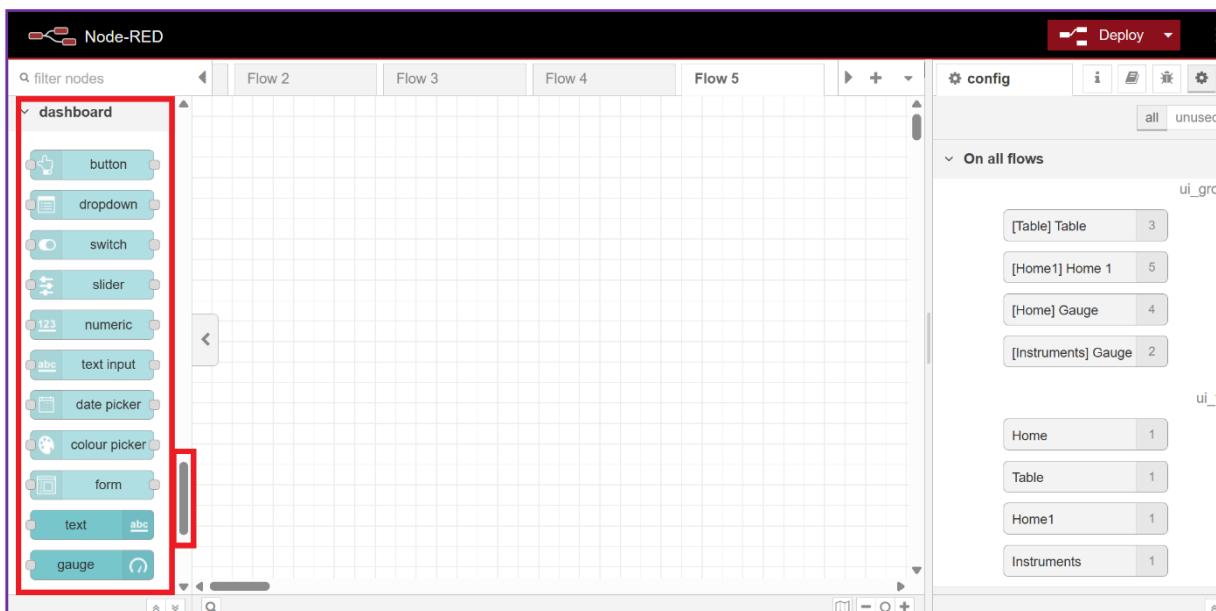
node-red-dashboard A set of dashboard nodes for Node-RED
3.6.5 1 year, 1 month ago **install**

@cgjgh/node-red-dashboard-2-authentik-auth Dashboard Auth with Authentik
1.2.3 8 months ago **install**

@cgjgh/node-red-dashboard-2-ui-scheduler A UI scheduler node that integrates with Node-RED Dashboard 2.0
3.1.1 2 days ago **install**

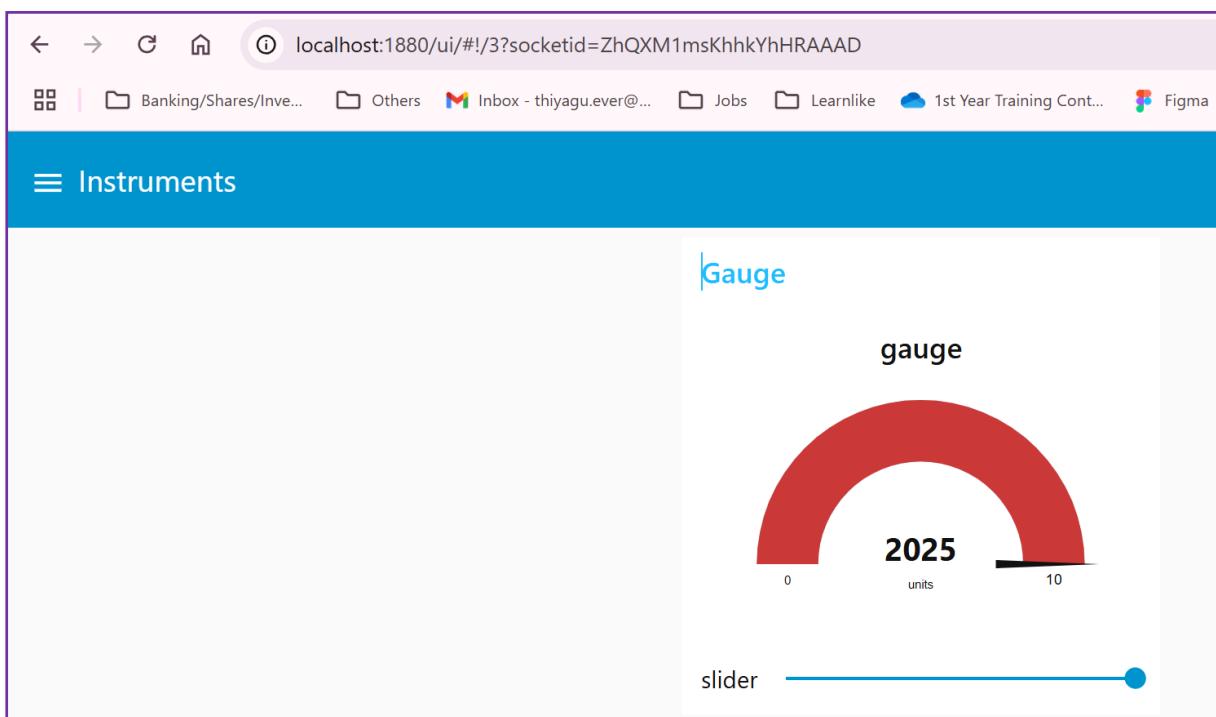
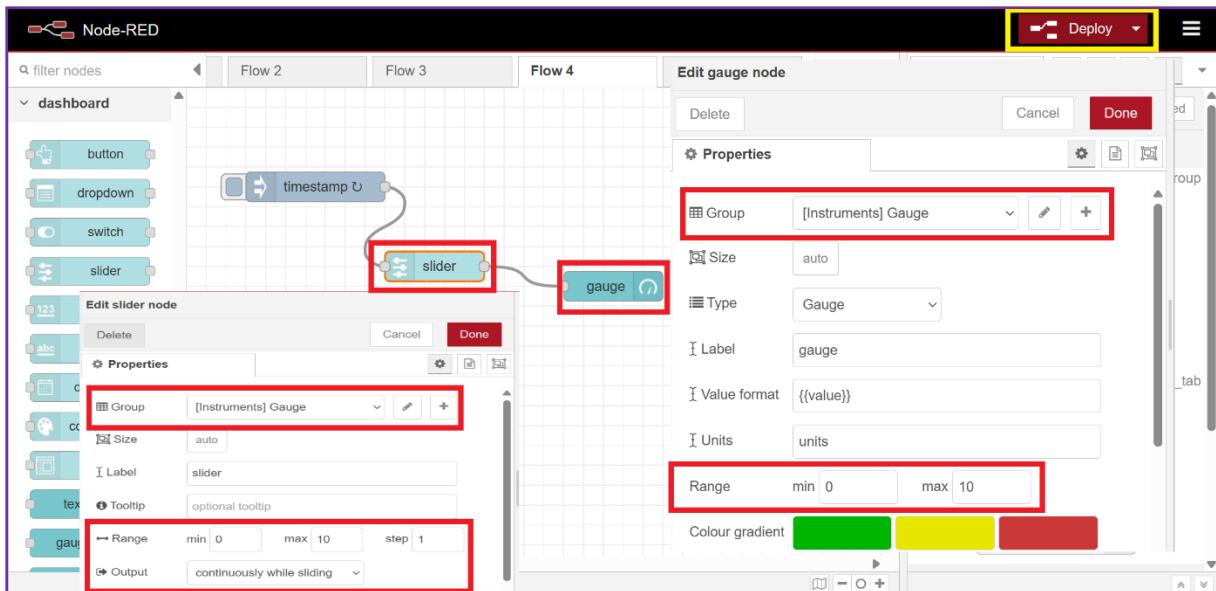
@cgjgh/node-red-dashboard-2-ui-slide-confirm A Slide to Confirm node for preventing accidental user actions in Node-RED Dashboard 2.0 **install**

3. Scroll down the left navigation menu to view the dashboard nodes that have been added to your Node-RED workspace, allowing you to create UI components for your flows.



The screenshot shows the Node-RED interface with the palette expanded to show the 'dashboard' category. Inside this category, there are ten UI nodes listed: button, dropdown, switch, slider, numeric, text input, date picker, colour picker, form, text, and gauge. The 'ui_gro' tab in the config sidebar indicates that three Table nodes, five Home1 nodes, four Gauge nodes, and two Instruments nodes are currently assigned to flows.

4. Follow this simple dashboard setup to connect a slider with a gauge. To access the UI in your browser, type <http://localhost:1880/ui>.



5. Visit the **Node-RED Tutorials** YouTube channel page for step-by-step guides.
<https://www.youtube.com/playlist?list=PLyNBB9VCLmo1hyO-4fLZ08gqFcXBkHy-6>

6. You can access the **Node-RED User Guide** at the official website:
[Node-RED User Guide](#)
 This guide covers installation, flow creation, nodes, dashboards, and advanced features.